

Things You May Want to Know About Your Auto Are to Be Found Here

PRACTICAL PARAGRAPHS

Of Interest to Owners of Automobiles

Clean Battery Box.
Sometimes it is necessary to use temporarily or permanently a set of dry cells in a compartment, where a storage battery was formerly housed. In this case the compartment should be carefully cleaned to remove all traces of the acid left by the battery. Otherwise the dry cells will be attacked and quickly destroyed.

Leaks in Float.
An excellent way to locate suspected leaks in the carburetor float is to immerse the part in hot water. In this way any gasoline in the interior will be vaporized and will force its way out of the hole, which may be located by watching for the bubbles to rise. The float should of course be removed from the water the instant the bubbles cease arising.

Anti-Scal.
The motorist may take a hint from steam boiler engineers, by mixing a little glycerine with the cooling water to prevent the formation of scale, in which capacity it is said to be very efficacious. The glycerine should be used in proportions of half a pint to each five gallons of water.

Save the Nut.
When bolting parts together, do not try to make the nut pull the bolt through if the latter sticks. Take a hammer and drive the bolt into place. Otherwise the threads are likely to be ruined.

Body Polish.
The car owner who would rather produce all his own "ingredients" at home, may be glad to know that an excellent body polish may be made from the following: One pint of turpentine, one pint of wood alcohol, one quart of distilled water and one quart of paraffine oil. The alcohol and turpentine should be mixed, after which the water and paraffine oil should be added. The best way of mixing the latter two is to place them in a bottle and shake them briskly. The solution should be applied with the soft side of a cotton flannel cloth and polished with a dry cloth.

Leather Boots.
It is very important that regular inspections should be made of the leather coverings or "boots," which protect the universals and other parts. Flying stones or sticks are apt to destroy these boots, permitting the lubricant to leak out and giving entrance to dust and dirt. Look them over once a month anyway.

To Clean Brass Castings.
Brass castings may be cleaned in an instant by dipping them into a solution of three parts of sulphuric acid and three parts nitric acid, to which after they have been mixed, there has been added one quart of common salt, the whole being stirred until the salt has dissolved. If this mixture is placed in an earthenware vessel, the brass castings can be dipped in it, removed immediately and rinsed in clear water. The castings can be made as bright as new by this method and little labor is involved.

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TWO NOTED RACE HORSES TO TRAVEL BY MOTOR TRUCK

One quarter of a million dollars' worth of horse flesh will travel by motor truck instead of railroad train, probably the first time a motor truck has been utilized for this purpose. The two horses, Omar Khayyam, greatest rival of Hourless, and Westey Hogan, property of W. Vlau, of Montreal and New York, are two of the best race horses in the string of that gentleman, and are trained by R. F. Carman, who conceived the novel plan of transporting the valuable animals in trucks instead of railroad trains, with the consequent vexatious delays from which he had suffered in the past.

Mr. Carman purchased the Acason 3-ton truck for the purpose from the West Motor Company, distributors of Acason trucks in New York, and had the body especially constructed for the comfort of his pets. The van is pronounced by those who have viewed it as remarkably fine in construction and impressive in appearance. It is fourteen feet in length and seven feet in width, and seven feet in height. The inside is fitted with two stalls for the race horses, and is provided with a stall for a pony which, it seems, is transported as company for a race horse which is at all nervous. The pony acts as companion.

The truck also has spaces arranged for the carrying of horse clothing and other material, and in fact lacks for nothing in the way of convenience for the transporting of such valuable animals as Omar Khayyam and Westey Hogan. In loading the horses on the truck, the tailboard is let down and the animals walk into their stalls, where they are provided with ample space and with no opportunity for injury through the jarring of the vehicle en route.

"MURRAY"



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Cylinder Forms in Modern Engines

One of the most interesting of the parts employed in the automobile engine of today is the cylinder. Strangely enough in this fundamental part, designers have found an opportunity for developing almost endless differences of opinion with respect to materials, shape, angle of location, method of cooling, numbers, etc. It is this variety of type that makes it worth study.

While the cylinder performs a passive function, so to speak, it must not be assumed that it has a sinecure. While it does not move in performing its duties, its upper area must act as a combustion chamber and be subject to intense heat, it must house the valves, act as a guide for the operation of the piston and provide for the mounting of the fan bracket, manifolds and sometimes of other parts.

The major classification of cylinders is according to their shape, which determines to a large extent the valve location. The ordinary forms are the L-head, the T-head, the valve in the head and the sleeve valve or Knight type. The other types, rotary, revolving cylinder, etc., are not in use in modern automobile power plants and do not interest us at present. The first two types have obvious names. The L-head type when seen in cross section looks like an inverted L. In the T-head engine the inlet and exhaust valves are located at opposite sides of the cylinder. This necessitates the use of two camshafts, one for the inlet valves, the other for the exhaust valves. In the engine which has the valves located in the head of the cylinder, the valves are operated through rods and rocker arms, or else an overhead camshaft is used. The sleeve valve engine employs sliding sleeves with appropriately located ports to let the fuel-in and the exhaust gases out, instead of the familiar poppet valves.

These are the fundamentally different classes, but there are minor variations, which permit of still more detailed groupings. An instance of this is found in an engine embodying the L-head cylinder, in which one set of valves is located in the usual place in the side. The other valves, however, are placed directly in the head and are operated by rods with rocker arms as in the ordinary type of valve-in-head power plant.

In the valve-in-head engine, there are a number of different methods of placing the valves. Sometimes these are placed directly above, opening down vertically into the combustion chamber. Again they may be placed horizontally in the cylinder head. In other cases the valves may be located in the head at an angle from the vertical.

One of the fundamental problems confronting the designer of a cylinder is to keep the combustion chamber as nearly spherical as possible, in order to reduce to the last degree the heat loss through the walls for it is remembered that heat is power and good design contains all the heat consonant with safe operation. Obviously the L-head and T-head types of cylinders approach this desired sphericity only approximately. The valve-in-head cylinder and the sliding sleeve type on the other hand, achieve an approximate approach to perfection in this respect. The elimination of the pockets in the combustion chamber of the engine contributes to exactness of combustion chamber volume.

There is a general impression that the shape of the cylinder and the comparative location of the valves, control the power output of the engine. This is true within limits, but in making comparisons it must be remembered that it is hard to get two engines of different types of exactly the same size and consequently potential power output. While the valve-in-head cylinder is generally acknowledged to be the best type theoretically, it would be perfectly possible to get an L-head, theoretically the weakest type, to perform better than the other. In the second place differences in performance are largely academic and a well made engine of any type will perform well enough to satisfy the average owner.

At the present time the valve-in-head engine is making rapid strides into favor with the discriminating automobile public. It has certain very real advantages, among which must be listed the ability to employ valves of generous size. This type also permits very efficient cooling of the valves and a free flow of fuel into the combustion chamber. But to realize all these potential advantages to the utmost, the cylinder must be correctly designed and constructed.

The materials used in cylinder construction today are gray iron, steel, semi-steel and aluminum. Gray iron is by far the dominant material in this field. The reasons for this are not only the general satisfaction given by the metal, but its relative cheapness as compared with its rivals. Steel is so expensive that it can be used on only the highest priced engines and at the present aluminum is in much the same boat. After the war when the price of aluminum drops again, this material may begin registering gains.

The problem of grouping the cylinders has been solved in almost as many ways as there are cylinders in automobile use. It used to be the custom to cast each cylinder separately or cast two together, but this is no longer the case. Cylinders are still cast in pairs, that is two of them are integral and these pairs are bolted together to form the engine unit, but it is getting to be the accepted practice to cast four cylinder engines in blocks and sixes are handled in the same way. Eight and twelve usually embody blocks of fours or sixes, though even these may be cast in single blocks. The block casting has won its way into favor during the past few years because of its cheapness and also because it has the positive merit of rigidity.

Cylinders may be still further classified in accordance with whether they have fixed or removable heads. In the removable head type, this part is detachable and is held in place at the top of the cylinders by means of bolts, a gasket being used to make the joint tight. From the owner's point of view the detachable head is a distinct advantage, since it gives a ready access to the interior of the engine for grinding valves, removing carbon, etc.

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MAJOR PULLMAN TO SHOW SAFETY FILMS IN SCHOOLS

Police bureau statistics of New York city show that approximately 25,000 persons were injured by automobiles and motor trucks in the streets of Greater New York during the last year.

It was such startling figures as these that aroused H. S. Firestone, president of the Firestone Tire and Rubber Company, to a realization of the great need of a national safety-first campaign, through the medium of the "movies," as a most timely aid for the conservation of human lives.

The film, "Careless America," was produced by the Universal Film Manufacturing Company under the direct supervision of Mr. Firestone. It is a thrilling story from start to finish, and in making the picture expense was totally disregarded—not less than nine fine touring cars being destroyed in a single reel.

While intensely interesting and exciting to the extreme, the film is an educational presentation which visualizes the penalty America is constantly paying for permitting careless or reckless autoists and ignorance of road rules among the users of the streets.

Superintendent of Police Major R. L. Pullman, having had the picture shown before him, became so much interested that he immediately began to make arrangements for the showing of "Careless America" before all the pupils of the Washington schools. He was further so much impressed with the lesson so vividly depicted that he has exerted every effort to have the film presented to the Washington public.

PLENTY OF TIRES FOR EVERY NEED, EXPERT DECLARES

Asked regarding Government restrictions on the importation of rubber, and the endeavor of tire manufacturers in co-operation with the Government to restrict the manufacture of unnecessary tire sizes, J. C. Weston, vice president and director of sales of the United States Tire Company, said:

"The intention of the Government in the control and restriction of the importation of rubber is to conserve shipping space, and the program that has been laid before the manufacturers of rubber goods has won their unanimous support for the War Trade Board and the Shipping Board."

"In addition, the manufacturers of tires are heartily co-operating with the Government program for the eventual elimination of unnecessary tire sizes. This elimination will simplify the problem for each user of the motor car of reducing his cost and making it possible for him to secure the tire size he needs, in good tires, more readily than the market and manufacturing conditions now permit."

"Plans for the withdrawal of certain tire sizes from use by manufacturers of motor cars will not in any way interfere with the manufacture and distribution of the tires to users who need those particular sizes at any time."

"I live in the country and have ordered a motor cycle from a mail order house. I have no rubber."

"Just what is rubber?" H. C. L.

Rubber is a juice that runs out of a tree like maple sugar. They mix it with hope, a few strings, and a lot of promises and roll it into a doughnut and sell it to you for \$87 and give you an adjustment of \$1.29 when it doesn't.

"Motor Cycle."

"I live in the country and have ordered a motor cycle from a mail order house. I have no rubber."



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?????? AND ANSWERS BY Llewellyn Powers Jones

Editorial Note: In the absence of our mechanical expert, Mr. Llewellyn Powers Jones, the Questions and Answers have been left in the capable hands of his secretary—MISS GWENDOLINE O'HOLLORAN.

Two Are Company: Three, None.
"What is the magneto speed for a three-cylinder, two-cycle engine?" EXPERIMENTER.

Mighty little, Experimenter, mighty little. You cannot "experiment" with this department. Cylinders come in pairs like socks, stays, and things.

Wreck Notice.
"How is electricity transmitted by a conductor?" IGNITION?

The only time we ever knew it to be was when a conductor was leaning against the controller box on the back platform one rainy night and we handed him a quarter. It was transmitted from the conductor to the quarter and from the quarter to us, and the conductor was the only one of the three who stayed on the platform.

Just Long Enough.
"Please explain just how the length of a valve stem should be adjusted?" K. G. B.

The plan followed by the best mechanics is to adjust a valve stem to just the length you need to reach from valve to wherever you want to fasten the stem. You neglect to state where you want the other end of the stem to fasten.

Yes, Yes, Go On!
"What are the requirements of a good clutch?" BUYER.
That it clutches.

Copied.
"What are the essential requirements of a lubricant?" K. M.

1. Body. 2. Fluidity or viscosity. 3. Freedom from gumming. 4. Absence of acid. 5. Stability under temperature changes. 6. Freedom from foreign matter. We copied that out of a book and would like some one to tell us what "lubricant," "fluidity," and "viscosity" mean.

Postponed.
"What is the 'synchronism of the gears'?" READER.
Lack of space prevents the answering of this question until next Saturday. The space allotted to this department is limited by the great amount of advertising on either side which this bright column is intended to call to the attention of the motorists of the city.



10 % of Our Entire Sales Will Be Given to the Red Cross

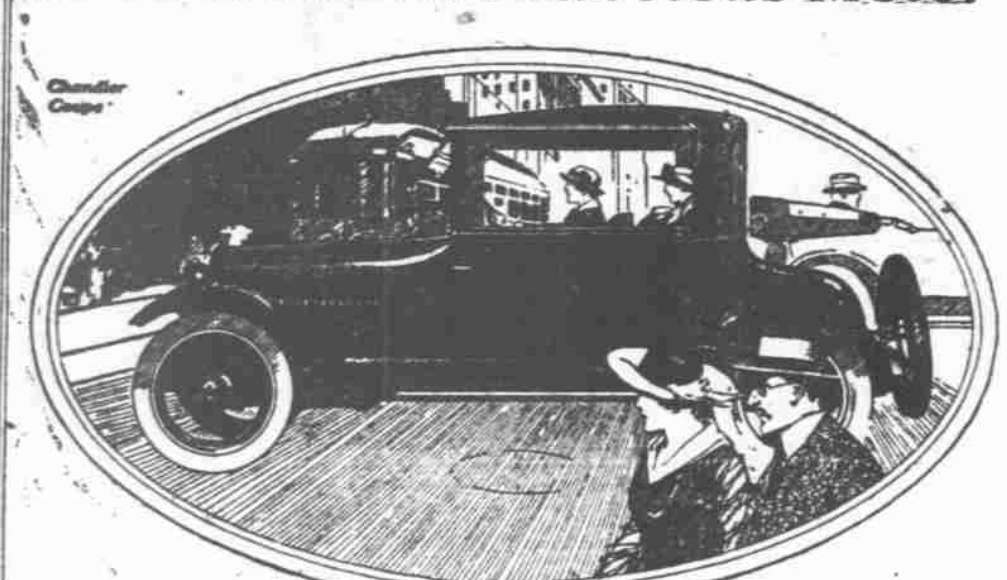
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30x3 1/2	\$11.55	30x3 1/2	\$2.58
32x3 1/2	\$13.25	32x3 1/2	\$2.70
31x4	\$17.20	31x4	\$3.20
32x4	\$17.50	32x4	\$3.28
33x4	\$18.25	33x4	\$3.35
34x4	\$18.75	34x4	\$3.43
34x4 1/2	\$23.75	34x4 1/2	\$4.10
35x4 1/2	\$25.35	35x4 1/2	\$4.18
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